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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,481	04/27/2001	Yasuhiko Onishi	FUJI:185	9134

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ROSSI & ASSOCIATES  
P.O. Box 826  
Ashburn, VA 20146-0826

EXAMINER
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LANDAU, MATTHEW C

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 09/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/844,481

Applicant(s)

ONISHI ET AL.

Examiner

Matthew Landau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17, 31 and 33 is/are pending in the application.
- 4a) Of the above claim(s) 5, 8-13, 15-17 and 33 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2 is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 6, 7, 14 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 5, 8-13, 15-17, and 33 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

### *Claim Rejections - 35 USC § 112*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the first pitch" in line 15 of the claim, and "the second pitch" in line 16 of the claim. There is insufficient antecedent basis for this limitation in the claim.

*Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 3, 4, 14, and 31 rejected under 35 U.S.C. 103(a) as being unpatentable over Coe in view of Fujihira.

In regards to claim 1, Figure 1 of Coe discloses a lateral semiconductor device comprising: a semiconductor chip; two main electrodes (23,24) on one major surface of the semiconductor chip; and an alternating conductivity type layer 3 between the main electrodes (23, 24); wherein the alternating conductivity type layer comprises first semiconductor regions 11 of a first conductivity type and second semiconductor regions 12 of a second conductivity type; wherein the first semiconductor regions 11 and the second semiconductor regions 12 are alternately arranged. Figure 2 of Coe discloses the alternating conductivity type layer 3 comprises a closed loop surrounding main electrode 23. The difference between Coe and the claimed invention is the first and second conductivity type regions alternately arranged in a surface portion of the major surface. Figure 6A of Fujihira discloses a drift region with first and second conductivity type semiconductor regions (1 and 2) alternately arranged on a surface of a substrate. In view of such teaching, it would have been obvious to the ordinary artisan at the time the invention was made to modify the invention of Coe by including alternating first and second conductivity type regions in a surface portion of the major surface. The ordinary artisan

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would have been motivated to modify Coe in the manner described above for the purpose of decreasing the ON-resistance (see column 11, lines 55-63 of Fujihira).

In regards to claim 3, Figure 2 of Coe discloses the alternating conductivity type layer 3 comprises at least one straight section and at least one curved section.

In regards to claim 4, Figure 2 of Coe discloses the alternating conductivity type layer 3 comprises at least two straight sections and at least two curved sections.

In regards to claim 14, Figure 2 of Coe discloses one closed loop including an alternating conductivity type layer 3.

In regards to claim 31, Coe discloses the lateral semiconductor device comprises a bipolar transistor (see column 11, lines 35-39). Coe further discloses the main electrode 23, the potential thereof is high, is inside the closed loop, and the other main electrode 24, the potential thereof is low, is outside the closed loop (see column 11, lines 39-46).

***Allowable Subject Matter***

6. Claim 2 is allowed. Claims 6 and 7 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not disclose an alternating conductivity type layer comprising first sections arranged at a first pitch and second sections arranged at a second pitch.

*Response to Arguments*

7. Applicant's arguments with respect to claims 1, 3, 4, 14, and 31 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ahlers et al. discloses an alternating conductivity type layer between two main

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electrodes. Bhatnagar et al. discloses two main electrodes with the channel region forming a closed loop around one of the main electrodes.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (703) 305-4396.

The examiner can normally be reached on 8:00 AM-4: 30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

Matthew C. Landau

Examiner

May 13, 2002